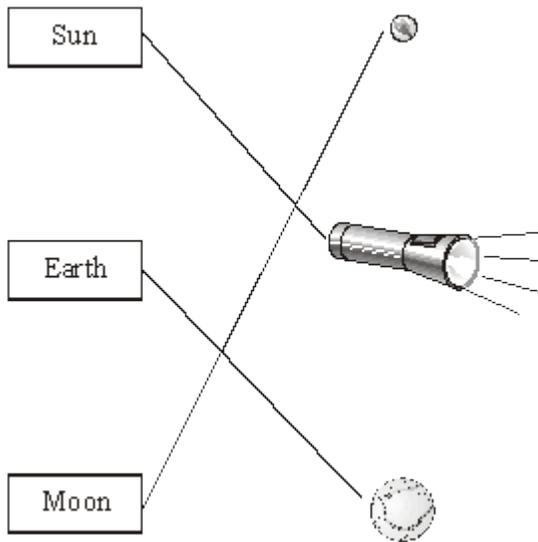


Mark schemes

1

(a) •



*if all three lines are correct, award two marks
 if one **or** two lines are correct, award one mark
 if more than one line is drawn from any part of the
 solar system, award no credit for that part*

2 (L3)

(b) •

Sun	<i>Mercury</i>	<i>Venus</i>	Earth	<i>Mars</i>	<i>Jupiter</i>	<i>Saturn</i>	<i>Uranus</i>	Neptune
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*award one mark for the Sun in the correct position
 award one mark for both Earth and Neptune in the
 correct positions*

2 (L3)

- (c) (i) any **one** from
- weather forecasting
accept 'weather'
 - communications
accept 'phone' or 'fax'
 - telescopes
 - global positioning system
accept 'GPS'
 - TV
 - spying
accept 'taking photographs'
 - internet
- 1 (L4)
- (ii) • gravity ✓
if more than one box is ticked, award no mark
- 1 (L4)

[6]

2

- (a) in the east ✓
if more than one box is ticked, award no mark
- 1 (L4)
- (b) (i) any **one** from
- 12.00 **or** twelve o'clock
 - 1.00 **or** one o'clock **or** 13.00
*accept answers between 11.50 and 13.30
to allow for variations between local time and GMT or BST*
 - midday **or** noon
*do **not** accept 'lunch time'*
- 1 (L4)
- (ii) towards the south ✓
if more than one box is ticked, award no mark
- 1 (L4)
- (c) in the west ✓
if more than one box is ticked, award no mark
- 1 (L4)

(d) any **one** from

- because the Earth rotates **or** spins
*accept 'because the Earth moves round
or goes round **or** spins and moves'*
- because the Earth turns around its axis
*do **not** accept 'because the Earth moves'
or 'because the Earth goes round the Sun'*

1 (L4)

(e) more than 8 minutes ✓

if more than one box is ticked, award no mark

1 (L4)

[6]

3

(a) • gravity ✓

if more than one box is ticked, award no mark

1 (L4)

(b) any **one** from

- telecommunications
accept 'communication'
- television **or** TV
- telephones
*accept 'phone' **or** 'fax'*
- radio
- weather
- military **or** spy observations
- land use observations
- GPS
accept 'navigation'
- internet
- monitoring **or** taking pictures of the Earth
*'looking at **or** taking pictures of planets **or** stars
or galaxies' is insufficient as it is given in the question*

1 (L4)

(c) • produces
reflects

*answers must be in the correct order
both answers are required for the mark*

1 (L4)

(d) • a bar drawn to 4 1 (L4)

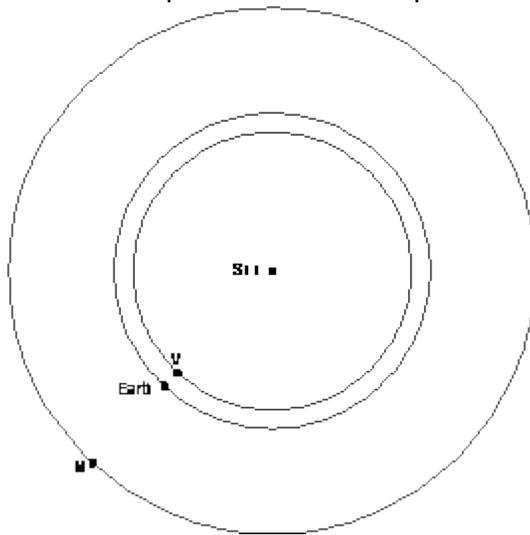
(e) (i) • Hubble telescope Earth Sun
accept 'Hubble' or 'telescope' for Hubble telescope
answers must be in the correct order
all three answers are required for the mark 1 (L3)

(ii) • They are further away than the Sun ✓
if more than one box is ticked, award no mark 1 (L3)

[6]

4

(a) (i) the dots for Mars, the Earth and Venus should be in a straight line, the shortest possible distance apart



1 (L5)

(ii) any **one** from

- it is brightest
accept 'it is brighter'
- it looks biggest **or** bigger
accept 'it is bigger'
accept 'you can see it at night'

1 (L5)

(b) gravity 1 (L5)

(c) any **one** from

- it is circular
- it is always the same distance from the Earth

1 (L6)

(d) winter

1 (L6)

any **one** from

- the Northern hemisphere is tilted away from
*do **not** accept 'the Earth is tilted the Sun away from the Sun'*
- Britain is in the part of the Earth which is tilted away from the Sun
- the Sun's rays hit the Earth at more of an angle
accept 'the Sun appears lower in the sky' angle
accept 'night is longer than day'

1 (L6)

[6]

5

(a) they reflect **or** scatter light

accept 'light reflects off it' or 'light reflects on it'
*do **not** accept 'light reflects onto it'*
or 'light shines on them'

1 (L5)

from the Sun

1 (L5)

(b) it goes into the shadow of the Earth

accept 'it is eclipsed' or 'it is not in the sunlight'
or 'it is no longer reflecting the sunlight'
accept 'it goes into the shadow of the Moon'
or 'it goes in front of the Moon'
*do **not** accept 'it goes behind the Moon'*
or 'the Moon gets in the way'
or 'the satellite tumbles'

1 (L6)

(c) any **one** from

- weather forecasting
- navigation **or** position finding
- communications
accept 'satellite TV' or 'TV' or 'telephone' or 'radio'
- astronomy **or** looking at the stars
- to take pictures of the Earth
accept 'spying' or 'surveillance' or 'to see changes in the environment or in land-use'
accept 'for defence' or 'as weapons'

1 (L5)

[4]

6

(a) (i) any **one** from

- Mercury
- Venus

1 (L5)

(ii) any **one** from

- Mars
- Jupiter
- Saturn
- Uranus
- Neptune
- Pluto

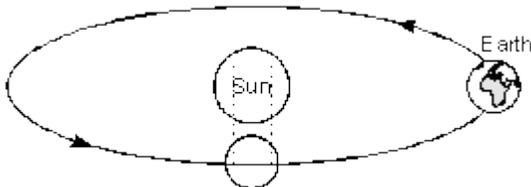
1 (L5)

(b) any **one** from

- the Earth spins **or** turns **or** rotates
do not accept 'the Earth rotates round the Sun'
- the Earth goes round on its axis
do not accept 'the Earth goes round'

1 (L5)

(c) (i) the Earth is drawn on its orbit,
with its centre between the limits shown



1 (L5)

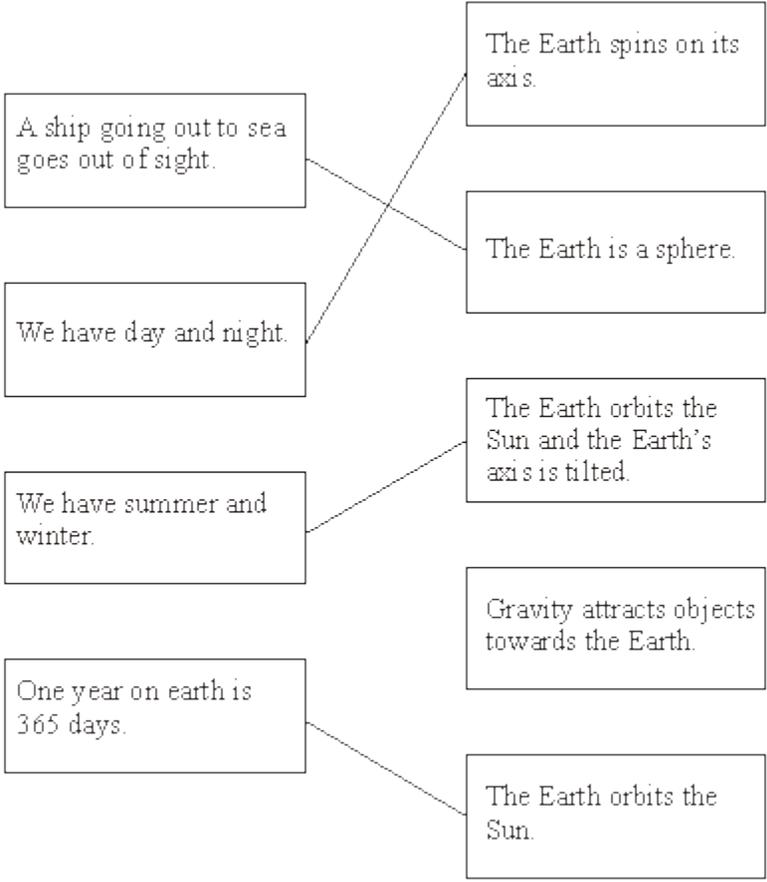
(ii) 9 months is $\frac{3}{4}$ of an orbit

accept '9 months is $\frac{3}{4}$ of a year' or 'it takes 3 months to go $\frac{1}{4}$ of an or bit' accept 'it takes one year to go all the way round' providing the Earth is drawn in the correct position in part (i)

1 (L5)

[5]

7



if more than one line is drawn from an observation, award no mark for that observation

4 (L5)

[4]

8

- (a) dot in line with Jupiter and the Sun on the 3rd circle out, between the Sun and Jupiter

*both the correct circle and the correct position of the dot on the circle are required for the mark the label E is **not** required*

1

- (b) because the Earth is travelling faster than Jupiter
accept 'because the Earth is travelling faster'
or 'the Earth is overtaking'
accept 'because Jupiter takes longer to orbit'
*do **not** accept 'because the stars are very far away'*

1

(c) ratio of distances = 6.3 : 1.5

1

35 minutes

accept 6.2 – 6.4 and 1.4 – 1.6

accept a time between 30 and 40 minutes

accept ' $\frac{8.3 \times 6.3}{1.5}$ ' for one mark 1.5 the unit is required for the mark

accept the correct time for both marks even if no working is shown

1

[4]

9

(a) • X: the Sun

1 (L5)

• Y: Mercury

1

(b) any **two** from

- it has a longer orbit
- it is further from the Sun
- the Sun's gravity is less
- it is slower

accept 'it has a bigger orbit'

accept 'it has a greater distance to cover'

accept 'it is further out'

accept 'Mars is closer to the Sun'

accept 'there is a smaller gravitational pull on it'

'it is further away' or 'it is further' are insufficient

2 (L6)

(c) (i) any **one** from

- the orbit times were the same
- it came at regular intervals
- they saw it every 76 years

accept 'he took 1531 from 1607 and 1607 from 1683'

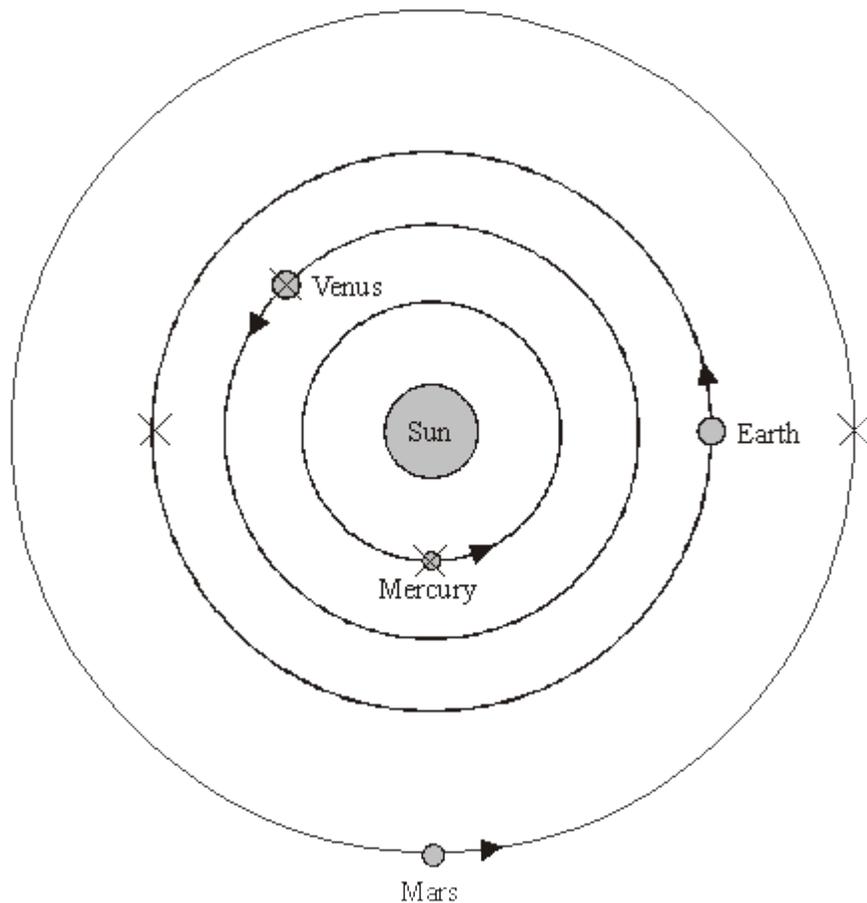
1 (L6)

(ii) • 2062

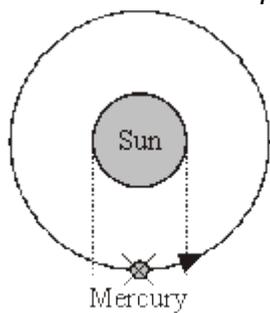
1 (L5)

[6]

10 (a)



for all **four** correct, award two marks
 for any **two** or **three** correct, award one mark
 accept a cross drawn that lies within the width
 of the Sun for each planet, e.g.



2 (L7)

(b) • 42

accept '150-108'

1 (L7)

• 258

accept '150+108'

1 (L7)

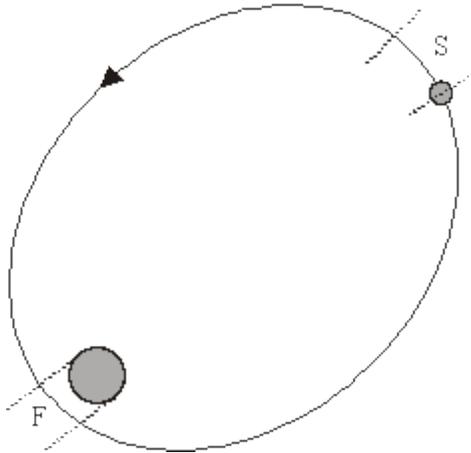
(c) 500

accept $\frac{150,000,000}{300,000}$ or $\frac{150 \text{ million}}{300,000}$

accept '8.3 minutes'
accept 'about 8 minutes'

1 (L7)

(d) (i)



both answers are required for the mark
accept an answer within the dotted lines
at either end of the ellipse

1 (L7)

(ii) attracted by the Sun's gravity
accept 'increased gravity near to Sun'

1 (L7)

[7]